

ABSTRACT

The main object of the present invention is to provide a liquid crystal display apparatus having a large displacement amount in a small load range, without generation the gravity mura, the low temperature foaming, or the like as mentioned above, having a sufficient strength also against a local load; and furthermore, capable of constantly producing a gap between the transparent substrates. In order to achieve the object, the present invention provides a liquid crystal display apparatus comprising at least two sheets of transparent substrates, a liquid crystal layer sealed between the two sheets of transparent substrates, and a plurality of columnar spacers formed between the two sheets of transparent substrates for keeping the gap between the two sheets of transparent substrates at a specified gap, characterized in that the displacement amount between the 80 mN to 400 mN load is in a range of 0.1 μm to 0.8 μm , and the displacement amount between the 600 mN to 950 mN load is in a range of 0.05 μm to 0.5 μm at the time of applying a load by the below-mentioned measurement method in the direction so as to reduce the gap between the two sheets of transparent substrates to the display area of the transparent substrates.

(Measurement method)

The displacement amount against a load is measured by applying a load in the vertical direction to the transparent substrate surface with an indenter having a 2 mm ϕ plane at a 2.22 mN/sec applied load contacted with either of the transparent substrate side under a of 23°C condition.